

SYSTEM AND METHOD FOR X-RAY FLUOROSCOPIC IMAGING

ABSTRACT OF THE DISCLOSURE

A system for x-ray fluoroscopic imaging of bodily tissue in which a scintillation screen and a charge coupled device (CCD) is used to accurately image selected tissue. An x-ray source generates x-rays which pass through a region of a subject's body, forming an x-ray image which reaches the scintillation screen. The scintillation screen re-radiates a spatial intensity pattern corresponding to the image, the pattern being detected by the CCD sensor. In a preferred embodiment the imager uses four 8 x 8-cm three-side buttable CCDs coupled to a CsI:Tl scintillator by straight (non-tapering) fiberoptics and tiled to achieve a field of view (FOV) of 16 x 16-cm at the image plane. Larger FOVs can be achieved by tiling more CCDs in a similar manner. The imaging system can be operated in a plurality of pixel pitch modes such as 78, 156 or 234- μ m pixel pitch modes. The CCD sensor may also provide multi-resolution imaging. The image is digitized by the sensor and processed by a controller before being stored as an electronic image. Other preferred embodiments may include each image being directed on flat panel imagers made from but not limited to, amorphous silicon and/or amorphous selenium to generate individual electronic representations of the separate images used for diagnostic or therapeutic applications.